PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Shigeo IIZUKA et al.

Application No.: 10/564,943 Examiner: D. SHEARER

Filed: May 9, 2006 Docket No.: 126691

For: FOAMER DISPENSER

BRIEF ON APPEAL

Appeal from Group 3754

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal and the present application is Yoshino Kogyosho Co., Ltd., by way of an Assignment recorded in the U.S. Patent and Trademark Office beginning at Reel 017602, Frame 0097.

II. STATEMENT OF RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellants, Appellants' representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-9 are on appeal.

Claims 1-9 are pending.

Claims 1-9 are rejected.

IV. STATUS OF AMENDMENTS

No Amendment After Final Rejection has been filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This disclosure relates to a foamer dispenser for ejecting a foamy mixture of air and liquid (see, e.g., paragraph [0001] of the specification). In particular, the meshes and jet ring of the dispenser are formed such that a range of ratios between the opening diameter ϕ_2 of the plurality of meshes and the opening diameter ϕ_1 of the jet ring (see, e.g., paragraph [0031] of the specification produces fine and homogenous foam irrespective of the liquid as compared to ratios outside of the disclosed range (see, e.g., paragraph [0032] of the specification).

The invention of independent claim 1 recites the structure of the foamer dispenser, including the specific range of ratios that produce fine and homogeneous foam. In particular, independent claim 1 recites "a foamer dispenser comprising: a base cap (20, Figs. 1 and 2, paragraph [0022], lines 2-4) fixedly held at a mouth (11, Figs. 1 and 2, paragraph [0022] line 2) of a container (10, Figs. 1 and 2, paragraph [0022], lines 1-2); two pumps (30, Figs. 1 and 2, paragraph [0022], lines 2-4) attached to the base cap and configured to separately suck, pressurize, and pressure-feed ambient air and liquid contents filled in the container; a depression head (40, Figs. 1 and 2, paragraph [0026], line 1) for defining a merging space (R, Fig. 2, paragraph [0026], lines 5-9) for merging outlet passages (P3, P4, Figs. 1 and 2, paragraph [0026], lines 5-7) of the pumps with each other, the depression head having an ejecting end (41, Figs. 1 and 2, paragraph [0026], line 9) communicating with an outside, and the depression head having an internal passage (42, Figs. 1 and 2, paragraph [0026], line 8) for communicating the merging space with the ejecting end, so as to eject contents mixed with the ambient air from the ejecting end by repeated depressing and returning operations of the depression head; and a foaming element (50, Figs. 1 and 2, paragraph [0027], line 1) disposed within the internal passage of the depression head and configured to foam the contents mixed with the ambient air, wherein the foaming element comprises: a jet ring (51, Figs. 1 and 2, paragraph [0027], line 1) having an inlet opening (H, Figs. 1 and 2, paragraph

[0027], line 3) with an opening area narrower than that of the internal passage of the depression head, the jet ring comprising a tubular body (51b, Figs. 1 and 2, paragraph [0027], line 6) with an opening area larger than that of the inlet opening and communicating with the internal passage of the depression head; and a plurality of meshes (52a, Figs. 1 and 2, paragraph [0028], line 18) disposed within the tubular body of the jet ring so as to face to the inlet opening of the jet ring, the meshes having a number of fine holes to be contacted with the contents mixed with the ambient air and supplied from the inlet opening to allow a part of the contents to pass through the meshes, the meshes each being coupled to a separate mesh ring (52a, Fig. 3, paragraph [0028], line 18), wherein the jet ring includes at least one rib (53, Fig. 4(b), paragraph [0040], line 1-3), wherein the meshes have an opening diameter $\phi 2$ which is 2.0 to 3.5 times as large as an opening diameter $\phi 1$ at the inlet opening of the jet ring (Figs. 1 and 2, paragraph [0038], lines 1-9)."

The base cap of independent claim 1 is "fixedly held at a mouth of a container." For example, the base cap 20 can be threaded or otherwise fixed to a bottle-type container 10 (see paragraph [0022] and Fig. 1 of the application).

The two pumps of independent claim 1 are "attached to the base cap and configured to separately suck, pressurize, and pressure-feed ambient air and liquid contents filled in the container." The two pumps 30 can have a cylinder 31 which is undercut fitted to the base cap 20 and suck, pressurize, and pressure-feed ambient air and liquid contents filled in the container 10 by the cooperation of several structural elements disclosed in paragraph [0024] of the specification.

The depression head of independent claim 1 defines "a merging space for merging outlet passages of the pumps with each other." For example, the depression head 40 can define a merging space R therein for merging the outlet passage P3 of one pump with an outlet passage P4 of a second pump (see paragraph [0026] of the specification). The

depression head of independent claim 1 includes "an ejecting end communicating with an outside," and "an internal passage for communicating the merging space with the ejecting end, so as to eject contents mixed with the ambient air from the ejecting end by repeated depressing and returning operations of the depression head." For example, the ejecting end 41 can communicate with an area outside of the container 10 and the internal passage 42 can communicate the merging space R with the ejecting end 41.

Independent claim 1 recites "a foaming element disposed within the internal passage of the depression head and configured to foam the contents mixed with the ambient air." For example, the foaming element 50 can be located within the internal passage 42 defined by the depression head and can cause the contents of the container 10 to foam when mixed with ambient air.

Independent claim 1 recites a jet ring having an inlet opening and meshes with fine holes. The inlet opening H of the jet ring 51 has an opening diameter of $\phi 1$ and each mesh 52a has an opening diameter of $\phi 2$ (see Fig. 3 of the present application). As discussed in paragraph [0039] of the present application, a $\phi 1$:$\phi 2$ ratio of 1:2.0 - 1:3.5 makes it possible "to provide an ejected foam having a fine and homogeneous foam quality irrespective[] of the contents, thereby allowing exhibition of excellent appearance and comfortable hand feeling of the foam when presented on a hand of [a] user." The application provides an example of such a beneficial ratio - where the inlet opening of the jet ring has a diameter $\phi 1$ of 1.0 mm, and each mesh 52a has an opening diameter $\phi 2$ of 2.3 mm (see paragraph [0038] of the specification).

The jet ring of independent claim 1 includes at least one rib. The rib 53 can fix one mesh ring 52 at the side of the depression head 40 and fix another mesh ring 52 at the side of the inlet opening H (see paragraph [0040] of the specification).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection is presented for review:

Claims 1-9 are rejected under 35 U.S.C. §103(a) over Iizuka et al. (U.S. Patent No. 5,813,576) in view of Maas et al. (U.S. Patent No. 4,925,106).

VII. ARGUMENT

The March 25, 2010 Final Rejection rejects claims 1-9 under 35 U.S.C. §103(a) over Iizuka in view of Maas. Claim 1 is the only rejected independent claim. Appellants respectfully submit that the PTO has improperly applied the law relating to obviousness, and for the reasons discussed below, it is respectfully submitted that the rejection is in error and that all pending claims are in condition for allowance. Reversal of the rejection is respectfully requested.

Iizuka and Maas, alone or combined, fail to disclose and would not have rendered obvious "wherein the meshes have an opening diameter $\phi 2$ which is 2.0 to 3.5 times as large as an opening diameter $\phi 1$ at the inlet opening of the jet ring," as recited in independent claim 1.

To establish a *prima facie* case of obviousness, the PTO must show that the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains (see 35 U.S.C. §103(a)). For a claimed range of parameters, the PTO can establish a *prima facie* case of obviousness if the prior art discloses a range that partially overlaps with or lies completely within the claimed range (see MPEP §2144.05(I)).

If the prior art fails to disclose such a range, the PTO can only establish a *prima facie* case of obviousness if the general conditions of a claim are shown in the art, and where the claimed range of parameters is a mere optimization of the general conditions (see MPEP §2144.05(II)). However, a particular parameter must first be recognized as a result-effective variable (a variable which achieves a recognized result), before the parameter can be considered "optimizable" (see MPEP §2144.05(II)(B), citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)).

The Office Action acknowledges that Iizuka fails to disclose a range of parameters that overlaps with or lies entirely within Applicants' claimed range (see page 3, last 3 lines of the March 25, 2010 Final Rejection). The Office Action instead argues that the claimed range would have been optimizable because "it is well known in the art and to a general worker that a change in diameter along a fluid flow path alters the characteristics of flow by introducing turblence [sic] at the diameter change location and that these characteristics are further altered based on the ratio between the two diameters" (see page 1 of the June 1, 2010 Advisory Action).

The Patent Office has provided no factual support for the assertion that a change in diameter along a fluid flow path introduces turbulence at the diameter change location, or for the assertion that the ratio between the two diameters has any bearing on turbulence or flow characteristics. The Examiner appears to provide the above assertion based on his own opinion and technical understanding. Indeed, the applied art is void of any such teaching or disclosure.

The claimed range of ratios is not an obvious optimization of a known result effective variable because the prior art does not disclose that the ratio between the mesh opening diameter and jet ring inlet opening diameter achieves a recognized result. The June 1, 2010 Advisory Action provides no support for its assertion that altering the opening diameter of the inlet opening of the jet ring and the opening diameter of the meshes is known to affect turbulence and/or foaming. Even if the assertion is correct, there is no disclosure that altering the ratio of such openings would be beneficial to foaming, and there is no disclosure of any need to improve Iizuka with respect to foaming. The Advisory Action also provides no reason why one of ordinary skill would have been motivated to make such a modification, or why one of ordinary skill would have been motivated to provide the ratios specifically recited

in claim 1. The references provide no hint that providing a particular ratio between the diameters of the mesh openings and the jet ring inlet opening would provide any benefit.

As taught only by Appellants' specification, the claimed range of ratios recited in independent claim 1 results in fine and homogenous foam, regardless of the contents of the container. This advantage is not disclosed or recognized by the applied art. Thus, the Office Action relies upon impermissible hindsight in reaching its conclusion of obviousness.

The arguments of the Advisory Action parallel those of *In re Antonie*. In *Antonie*, the claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable. Similar to *Antonie*, the art relied on in the Office Action does not recognize that the ratio between the opening diameter of the jet ring and the opening diameter of the meshes is a result-effective variable, for example affecting the fineness and homogeneity of the foam regardless of the contents of the container.

In fact, the prior art specifically discloses that desired foam is produced by optimizing the size of the mesh opening, not by controlling the ratio between the opening diameter of the jet ring and the opening diameter of the meshes, as claimed in claim 1. In particular, see paragraph [0035] of JP 2002-159893A (of record), teaching that the size of the mesh opening "is formed so that the meshes of a net of the porous sheet of the downstream (side near the delivery 43) may become fine rather than the meshes of a net of the porous sheet of the upstream (side near the mixing chamber)." Based on the teachings of the prior art referenced above, one of ordinary skill would not have known to optimize the ratio of the jet ring opening diameter and the meshes' opening diameter as recited in independent claim 1, but would simply optimize the size of the mesh openings with no regard to the jet ring opening diameter. The claimed ratio is therefore not recognized as a result-effective variable. The

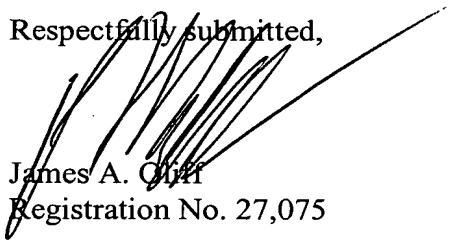
Office Action has thus failed to establish a *prima facie* case of obviousness, i.e. that the claimed ratio is something one would attempt to optimize.

Because the Patent Office has not established a *prima facie* case of obviousness, it is not necessary for Appellants to show criticality, unexpected results, etc. Thus, the commentary on page 7 of the Final rejection is irrelevant.

VIII. CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejection is in error and that claims 1-9 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejection of claims 1-9.

Respectfully submitted,



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APPENDIX A - CLAIMS APPENDIX

CLAIMS INVOLVED IN THE APPEAL:

1. A foamer dispenser comprising:

a base cap fixedly held at a mouth of a container;

two pumps attached to the base cap and configured to separately suck, pressurize, and pressure-feed ambient air and liquid contents filled in the container;

a depression head for defining a merging space for merging outlet passages of the pumps with each other, the depression head having an ejecting end communicating with an outside, and the depression head having an internal passage for communicating the merging space with the ejecting end, so as to eject contents mixed with the ambient air from the ejecting end by repeated depressing and returning operations of the depression head; and

a foaming element disposed within the internal passage of the depression head and configured to foam the contents mixed with the ambient air, wherein the foaming element comprises:

a jet ring having an inlet opening with an opening area narrower than that of the internal passage of the depression head, the jet ring comprising a tubular body with an opening area larger than that of the inlet opening and communicating with the internal passage of the depression head; and

a plurality of meshes disposed within the tubular body of the jet ring so as to face to the inlet opening of the jet ring, the meshes having a number of fine holes to be contacted with the contents mixed with the ambient air and supplied from the inlet opening to allow a part of the contents to pass through the meshes, the meshes each being coupled to a separate mesh ring,

wherein the jet ring includes at least one rib,

wherein the meshes have an opening diameter $\phi 2$ which is 2.0 to 3.5 times as large as an opening diameter $\phi 1$ at the inlet opening of the jet ring.

2. The foamer dispenser according to Claim 1, wherein the plurality of meshes have the opening diameter $\phi 2$ which is 2.2 to 3.2 times as large as the opening diameter $\phi 1$ at the inlet opening of the jet ring.

3. The foamer dispenser according to Claim 1, wherein the jet ring has a tapered surface or curved surface connecting between the inlet opening and one of the plurality of meshes.

4. The foamer dispenser according to Claim 1, wherein the pumps consist of a dual pump comprising:

a cylinder suspended from a lower surface of the base cap, and configured to cooperate with an inner periphery of the mouth of the container to define an annular gap therebetween which communicates with an interior of the mouth and is sealed by the base cap; and

two pistons arranged in series with each other within the cylinder so as to be slidable therein;

wherein the pistons are configured to separately suck, pressurize, and pressure-feed the contents within the container and the ambient air.

5. The foamer dispenser according to Claim 4, wherein the dual pump is formed with an ambient air introduction port at a cylinder portion constituting the pump for sucking, pressurizing, and pressure-feeding the ambient air, the ambient air introduction port being blocked by the piston for sucking, pressurizing, and pressure-feeding the ambient air when the piston is in a stationary state where the piston is kept unslid, and the ambient air introduction port being released from the piston when the piston is depressed, to thereby introduce ambient air into the container.

6. The foamer dispenser according to Claim 1, wherein the at least one rib comprises two ribs being formed at the side of the depression head.

7. The foamer dispenser according to Claim 1, wherein the at least one rib comprises two ribs being formed at the side of the inlet opening.

8. The foamer dispenser according to Claim 1, wherein the at least one rib comprises at least two pairs of ribs being formed at least at two positions inside the jet ring to allow for a plurality of positions for fixing of the plurality of meshes.

9. The foamer dispenser according to Claim 1, wherein the meshes of the jet ring are circular in transverse cross-sectional shape and the inlet opening of the jet ring is circular in transverse cross-sectional shape.

APPENDIX B - EVIDENCE APPENDIX

NONE

APPENDIX C - RELATED PROCEEDINGS APPENDIX

NONE